

## **Appendix B**

### **Rough Order-of-Magnitude Cost Estimates for Actions to Reduce Water Infiltration Beneath Northern INTEC**

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## Idaho Cleanup Project

CH2M•WG IDAHO, LLC

**DRAFT**

### INTEROFFICE MEMORANDUM

**Date:** August 3, 2006

**To:** J. R. Forbes MS 3940 6-9685

**From:** J. D. Folker MS 3655 6-0322

**Subject:** EDF 6868 METHODS TO REDUCE WATER INFILTRATION AT INTEC

Per your request, Estimating Services has prepared a Project Support Cost Estimate for the above referenced project.

The cost for each alternative (with contingency) is as follows:

Task Number	Costs in 2006 Dollars	Costs in Escalated Dollars	Costs in Net Present Dollars
1	\$185,866	\$190,884	\$178,397
2	\$870,000	\$1,272,425	\$483,384
3	0	0	0
4	\$11,854	\$12,174	\$9,938
5	\$4,379,580	\$6,405,388	\$2,433,354
6	\$1,659,636	\$5,079,621	\$617,083
7	\$295,008	\$380,604	\$211,110
8	\$212,220	\$649,538	\$78,907
9	\$1,766,876	\$5,407,857	\$656,954
10	\$2,172,626	\$6,649,741	\$807,816

Please note:

1. This project has been identified as a CWI owned and funded project.
2. No services will be purchased from BEA.
3. For contingency, please refer to the Cost Estimate Summary Sheet.

4. G&A has not been included in the analysis.

Please refer to the attached Cost Estimate Summary Sheet, Cost Estimate Level Summary Sheet, Cost Estimate Support Data Recapitulation, Summary Report, Project Summary Report, and Detail Item Report. Please note that the Detail Alternative Estimate Sheets have been sent to you electronically.

This estimate is based on information provided by you as to the scope of work to be completed. Any changes to the methodology used to prepare this could have a significant effect on the cost estimate and/or schedule and should be reviewed by Estimating Services. If you have questions or comments, please call me at 6-0322, or email *folkjd*.

jdf

Attachments

cc: H. S. Forsythe, MS 3940  
L. Cahn, MS 3940  
Estimate File 2974-E  
Letter File (JDF-20-06)

Uniform File Code: 8000

Disposition Authority: A16-1.5-b

Retention Schedule: Cut off at the end of each fiscal year. Destroy 15 years after cutoff.

NOTE: Original disposition authority, retention schedule, and Uniform Filing Code applied by the sender may not be appropriate for all recipients. Make adjustments as needed.

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CH2M♦WG IDAHO, LLC

**COST ESTIMATE SUPPORT DATA RECAPITULATION**

Project Title: ENGINEERING DESIGN FILE 6868 METHODS TO REDUCE WATER INFILTRATION AT INTEC

Estimator: J. D. FOLKER

Date: AUGUST 3, 2006

Estimate Type: PLANNING

File: 2974-E

Approved By:

Page 1 of 3

- I. **PURPOSE:** *Brief description of the intent of how the estimate is to be used, i.e., for engineering study, comparative analysis, DWP, LCB out-year planning, BCP, etc.*

This budgetary estimate will be used to support a proposed plan.

- II. **SCOPE OF WORK:** *Brief statement of the project's objective. Thorough overview and description of the proposed project. Identify work to be accomplished, as well as any specific work to be excluded.*

The objective of this project is to minimize infiltration of water within the Idaho Nuclear Technology and Engineering Center (INTEC) facility to reduce recharge to the underlying contaminated perched water zones and, thereby, minimize the downward migration of contaminants toward the Snake River Plain Aquifer (SRPA). The following steps will be taken to accomplish this objective:

1. Capture roof run-off from selected existing building downspouts within the secondary recharge control zone (SRCZ) and route water to lined ditches and evaporation pond
2. Perform pipeline valve isolation tests and/or pipeline hydrostatic tests to identify leaks in suspect areas
3. Eliminate lawn watering
4. Eliminate steam condensate drip-leg discharges to ground
5. Conduct regular water balance calculations to highlight changes in system flows that could indicate leaks
6. Install asphalt or concrete in unlined north ditch to eliminate infiltration
7. Install two additional flow meters to improve confidence in water balance calculations
8. Install telemetry for real-time water level monitoring in selected perched water monitoring wells
9. Extend pavement and/or lined ditches to reduce storm water infiltration
10. Improve surface water drainage along Olive Avenue to reduce or eliminate ponding and infiltration.

**COST ESTIMATE SUPPORT DATA RECAPITULATION**

- Continued -

Project Title: EDF 6868 METHODS TO REDUCE WATER INFILTRATION AT INTEC

File: 2974-E

Page 2 of 3

III. **BASIS OF THE ESTIMATE:** *Overall methodology and rationale of how the estimate was developed. Source documents to include drawings, design reports, engineers' notes and/or other documentation upon which the estimate is originated. Overall explanation of sources for resource pricing.*

- A. Engineering Design File (EDF) 6868
- B. Conversations with the requester.
- C. Olive Avenue lift station cost estimate from FY 2000 escalated to FY 2006.
- D. Operation and maintenance activity durations were provided by the requester.

IV. **ASSUMPTIONS:** *Condition statements accepted or supposed true without proof of demonstration; statements adding clarification to scope. An assumption has a direct impact on total estimated cost.*

- A. This is a CWI owned project.
- B. All capital expenditures will be complete in FY 2007.
- C. Concrete ditch designs were assumed as shown on drawing number 515192 details 12 and 13.

V. **CONTINGENCY GUIDELINE IMPLEMENTATION:** *Explanation of methodology used in determining overall contingency. Identify any specific drivers or items of concern.*

Because of a lack of design drawings, 30% contingency has been applied to the estimate.

VI. **ESTIMATE SUMMARY:** *Total dollars/hours and Rough Order Magnitude (ROM) allocations of the methodologies used to develop the cost estimate.*

<b>Estimate Methodology</b>	<b>ROM Percentage %</b>
Project Team	100
Recorded Actuals	0
Parametric	0
Vendor Quotes	0
Other	0
TOTAL	100

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: EDF 6868 METHODS TO REDUCE WATER INFILTRATION AT INTEC

File: 2974-E

Page 3 of 3

VII. **OTHER COMMENTS/CONCERNS SPECIFIC TO THE ESTIMATE:**

- A. Costs from the detailed cost estimate sheets are direct costs for labor. Costs for corresponding divisions on the cost estimate summary sheet include all applicable indirect costs (overhead).
- B. For specific basis and assumptions, please refer to the Detail Item Report.

**DRAFT**

**Project Summary Report**

Project Name: **WAG 3/Group 4**  
**EDF 6868 Methods to Reduce Water Infiltration at INTEC**  
Project Location: **CPP-604, North INTEC Near Water Tanks**  
Estimate Number: **2974-E**

Client: **J. R. Forbes, 6-9685**  
Prepared By: **J. Folker, 6-0322**  
Estimate Type: **Planning**

<u>Level</u>	<u>Group</u>	<u>Description</u>	<u>Estimate Subtotal</u>	<u>Escalation</u>	<u>Contingency</u>	<u>Contingency %</u>	<u>TOTAL</u>
01000		PROJECT MANAGEMENT	\$62,823	\$0	\$18,847	30.00%	\$81,669
02000		CONSTRUCTION MANAGEMENT	\$83,764	\$0	\$25,129	30.00%	\$108,893
03000		QUALITY ASSURANCE	\$31,411	\$0	\$9,423	30.00%	\$40,835
04000		CONSTRUCTION SUBCONTRACT	\$805,418	\$0	\$241,626	30.00%	\$1,047,044
04000		--TASK 1-CAPTURE ROOF RUNOFF FROM SELECTED BLDGS	\$110,275	\$0	\$33,083	30.00%	\$143,358
04000		--TASK 4-ELIMINATE STEAM CONDENSATE DRIP LEG DISCHARGES TO GROUND NEAR CPP-604	\$7,033	\$0	\$2,110	30.00%	\$9,143
04000		--TASK 6-INSTALL CONCRETE IN UNLINED NORTH DITCH	\$182,347	\$0	\$54,704	30.00%	\$237,051
04000		--TASK 9-EXTEND PAVEMENT AND/OR LINED DITCHES TO REDUCE STORMWATER INFILTRATION	\$194,128	\$0	\$58,238	30.00%	\$252,366
04000		--TASK 10-IMPROVE SURFACE WATER DNG ALONG OLIVE AVE	\$238,706	\$0	\$71,612	30.00%	\$310,317
04000		--TASK 7-TWO ADDITIONAL FLOWMETERS ON FIRE WATER SYSTEM	\$72,929	\$0	\$21,879	30.00%	\$94,808
05000		CONSTRUCTION SUPPORT	\$60,820	\$0	\$18,246	30.00%	\$79,066
<hr/>							
Total	WAG 3/GROUP 4/EDF 6868-METHODS TO REDUCE WATER INFILTRATION at INTEC/TASKS 4, 6		\$1,044,236	\$0	\$313,271	30.00%	\$1,357,506



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COST ESTIMATE SUMMARY SHEET

Project: EDF-6868  
Methods to Reduce Water Infiltration at INTEC

DESCRIPTION	TASKS									
	#1 Roof Runoff	#2 Pipeline Isolation Tests	#3 Eliminate Lawn Watering	#4 Steam Driplegs	#5 Qtrly Water Balance Calcs	#6 Line North Ditch w/Concrete	#7 Install Two Flowmwters On FW System	#8 Install Telemetry on Perched Mon Wells	#9 Extend Pavement to Reduce SW Infil	#10 Improve SW Dng Along Olive Ave
TOTAL PROJECT DURATION (Years)										
CAPITAL COST -										
Capital Cost Subtotal	\$142,974	\$0	\$0	\$9,118	\$0	\$236,415	\$94,554	\$30,231	\$251,689	\$309,485
Contingency	\$42,892	\$0	\$0	\$2,736	\$0	\$70,925	\$28,366	\$9,069	\$75,507	\$92,845
Total Capital Cost in FY06 Dollars	\$185,866	\$0	\$0	\$11,854	\$0	\$307,340	\$122,920	\$39,300	\$327,196	\$402,330
Total Capital Cost in Escalated Dollars	\$190,884	\$0	\$0	\$12,174	\$0	\$315,638	\$126,239	\$40,361	\$336,030	\$413,193
Total Capital Cost in Net Present Value	\$178,397	\$0	\$0	\$9,938	\$0	\$294,989	\$117,980	\$37,721	\$314,047	\$386,162
OPERATION AND MAINTENANCE COSTS (O&M) -										
O&M Cost Subtotal	\$0	\$669,231	\$0	\$0	\$3,368,908	\$1,040,228	\$132,375	\$133,015	\$1,107,446	\$1,361,766
Contingency	\$0	\$200,769	\$0	\$0	\$1,010,672	\$312,068	\$39,713	\$39,905	\$332,234	\$408,530
Total O&M Cost in FY06 Dollars	\$0	\$870,000	\$0	\$0	\$4,379,580	\$1,352,296	\$172,088	\$172,920	\$1,439,680	\$1,770,296
Total O&M Cost in Escalated Dollars	\$0	\$1,272,425	\$0	\$0	\$6,405,388	\$4,763,982	\$254,366	\$609,177	\$5,071,826	\$6,236,548
Total O&M Cost in Net Present Value	\$0	\$483,384	\$0	\$0	\$2,433,354	\$322,094	\$93,130	\$41,187	\$342,907	\$421,654
PERIODIC COSTS -										
Periodic Cost Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Contingency	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Total Periodic Cost in FY06 Dollars	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Total Periodic Cost in Escalated Dollars	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Total Periodic Cost in Net Present Value	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
TOTAL PROJECT COST IN 2006 DOLLARS	\$185,866	\$870,000	\$0	\$11,854	\$4,379,580	\$1,659,636	\$295,008	\$212,220	\$1,766,876	\$2,172,626
TOTAL PROJECT COST IN ESCALATED DOLLARS	\$190,884	\$1,272,425	\$0	\$12,174	\$6,405,388	\$5,079,621	\$380,604	\$649,538	\$5,407,857	\$6,649,741
TOTAL PROJECT COST IN NET PRESENT VALUE	\$178,397	\$483,384	\$0	\$9,938	\$2,433,354	\$617,083	\$211,110	\$78,907	\$656,954	\$807,816

DRAFT

COST ESTIMATE LEVEL SUMMARY SHEET

Project: EDF-6868  
Methods to Reduce Water Infiltration at INTEC

DESCRIPTION	TASKS								#9 Extend Pavement to Reduce SW Infil	#10 Improve SW Dng Along Olive Ave
	#1 Roof Runoff	#2 Pipeline Isolation Tests	#3 Eliminate Lawn Watering	#4 Steam Driplegs	#5 Qtrly Water Balance Calcs	#6 Line North Ditch w/Concrete	#7 Install Two Flowmeters On FW System	#8 Install Telemetry on Perched Mon Wells		
CAPITAL COST -	\$185,866	\$0	\$0	\$11,854	\$0	\$307,340	\$122,920	\$39,300	\$327,196	\$402,330
Construction Activities	\$143,358			\$9,143		\$237,051	\$94,808	\$27,510	\$252,366	\$310,317
Professional/Technical Services (Capital)	\$42,508			\$2,711		\$70,289	\$28,112	\$11,790	\$74,830	\$92,013
Institutional Controls (Capital)										
OPERATION AND MAINTENANCE (O&M)	\$0	\$870,000	\$0	\$0	\$4,379,580	\$1,352,296	\$172,088	\$172,920	\$1,439,680	\$1,770,296
O&M Activities	\$0	\$870,000			\$4,379,580	\$1,352,296	\$172,088	\$172,920	\$1,439,680	\$1,770,296
Surveillance and Monitoring										
Institutional Controls (O&M)										
TOTAL PROJECT COST IN FY06 Dollars	\$185,866	\$870,000	\$0	\$11,854	\$4,379,580	\$1,659,636	\$295,008	\$212,220	\$1,766,876	\$2,172,626

For contingencies, see "Summary Cost Estimate Sheet"

431.02  
01/30/2003  
Rev. 11

## ENGINEERING DESIGN FILE

EDF-6868  
Revision 0  
Page 75 of 84

### Summary Report

**DRAFT**

Project Name: **WAG 3/Group 4**  
**EDF 6868 Methods to Reduce Water Infiltration at INTEC**  
Project Location: **CPP-604, North INTEC Near Water Tanks**  
Project Number: **2974-E**

<u>ESTIMATE ELEMENT</u>	<u>Estimate Subtotal</u>	<u>Escalation</u>	<u>Contingency</u>	<u>TOTAL</u>
<b>Total Estimated Cost (TEC)</b>	<b>\$1,044,236</b>	<b>0.00%</b> <b>\$0</b>	<b>30.00%</b> <b>\$313,271</b>	<b>\$1,357,506</b>
<b>Total Cost</b>	<b>\$1,044,236</b>	<b>0.00%</b> <b>\$0</b>	<b>30.00%</b> <b>\$313,271</b>	<b>\$1,357,506</b>
<b>Rounded Total Cost</b> (Rounded to the nearest \$ 1000)				<b>\$1,358,000</b>

	Remarks
Type of Estimate: <u>Planning</u>	Tasks 1,4, 6, 7, 9, 10
Estimator: <u>J. Folker, 6-0322</u>	
Checked By: _____	
Approved By: _____	

431.02  
01/30/2003  
Rev. 11

## ENGINEERING DESIGN FILE

EDF-6868  
Revision 0  
Page 76 of 84

**DRAFT**

### DETAIL ITEM REPORT

Project Name: **WAG 3/Group 4**  
**EDF 6868 Methods to Reduce Water Infiltration at INTEC**  
Project Location: **CPP-604, North INTEC Near Water Tanks**  
Estimate Number: **2974-E**

Client: **J. R. Forbes, 6-9685**  
Prepared By: **J. Folker, 6-0322**  
Estimate Type: **Planning**

<u>Code</u>	<u>Description</u>	<u>Contractor</u>	<u>Qty</u>	<u>UOM</u>	<u>Hrs</u>	<u>Resource</u>	<u>Labor</u>	<u>Equipment</u>	<u>Material</u>	<u>Subcontractor</u>	<u>Other</u>	<u>TOTAL</u>
<b>01000 PROJECT MANAGEMENT</b>												
	P. M. @6% of Construction Costs		U.C. per \$	1,047,044.00	\$	0		\$0	\$0	\$0	\$0	0.06
											\$62,823	\$62,823
	Subtotal							\$0	\$0	\$0	\$62,823	\$62,823
	Sales Tax							\$0	\$0	\$0	\$0	\$0
	Overheads		0.00%					\$0	\$0	\$0	\$0	\$0
	Subtotal Estimate							\$0	\$0	\$0	\$0	\$62,823
	Escalation							\$0	\$0	\$0	\$0	\$0
	Contingency							\$0	\$0	\$0	\$18,847	\$18,847
---	Total 01000 PROJECT MANAGEMENT					0		\$0	\$0	\$0	\$81,669	\$81,669
<b>02000 CONSTRUCTION MANAGEMENT</b>												
	C. M. @ 8% of Construction Costs		U.C. per \$	1,047,044.00	\$	0		\$0	\$0	\$0	\$0	0.08
								\$0	\$0	\$0	\$83,764	\$83,764
	Subtotal							\$0	\$0	\$0	\$83,764	\$83,764
	Sales Tax							\$0	\$0	\$0	\$0	\$0
	Overheads		0.00%					\$0	\$0	\$0	\$0	\$0
	Subtotal Estimate							\$0	\$0	\$0	\$0	\$83,764
	Escalation							\$0	\$0	\$0	\$0	\$0
	Contingency							\$0	\$0	\$0	\$25,129	\$25,129
---	Total 02000 CONSTRUCTION MANAGEMENT					0		\$0	\$0	\$0	\$108,893	\$108,893
<b>03000 QUALITY ASSURANCE</b>												
	Q. A. @3% of Construction Costs		U.C. per \$	1,047,044.00	\$	0		\$0	\$0	\$0	\$0	0.03
								\$0	\$0	\$0	\$31,411	\$31,411

08/07/2006 10:43:45

Estimating Services Department

Material Costs where applicable include Idaho State Sales Tax

Page No. 1

431.02  
01/30/2003  
Rev. 11

## ENGINEERING DESIGN FILE

EDF-6868  
Revision 0  
Page 77 of 84

### DETAIL ITEM REPORT

Project Name: **WAG 3/Group 4**  
**EDF 6868 Methods to Reduce Water Infiltration at INTEC**  
Project Location: **CPP-604, North INTEC Near Water Tanks**  
Estimate Number: **2974-E**

Client: **J. R. Forbes, 6-9685**  
Prepared By: **J. Folker, 6-0322**  
Estimate Type: **Planning**

<u>Code</u>	<u>Description</u>	<u>Contractor</u>	<u>Qty</u>	<u>UOM</u>	<u>Hrs</u>	<u>Resource</u>	<u>Labor</u>	<u>Equipment</u>	<u>Material</u>	<u>Subcontractor</u>	<u>Other</u>	<u>TOTAL</u>
<b>03000 QUALITY ASSURANCE</b>												
	Subtotal							\$0	\$0	\$0	\$31,411	\$31,411
	Sales Tax							\$0	\$0	\$0	\$0	\$0
	Overheads	0.00%						\$0	\$0	\$0	\$0	\$0
	Subtotal Estimate							\$0	\$0	\$0	\$0	\$31,411
	Escalation							\$0	\$0	\$0	\$0	\$0
	Contingency							\$0	\$0	\$0	\$9,423	\$9,423
---Total 03000 QUALITY ASSURANCE					0			\$0	\$0	\$0	\$40,835	\$40,835

### 04000 TASK 1-CAPTURE ROOF RUNOFF FROM SELECTED BLDGS

'CPP 659'	GEN	U.C. per ls	1.00	ls	0			\$0	\$0	\$0	\$0	\$0
6" HDPE	GEN	U.C. per LF	15.00	LF	0.667	\$47.76	31.84	\$0	\$3	\$0	\$0	\$34.84
Memo: In non traffic area- Set above ground												
Excavation, Backfill, Compaction	GEN	U.C. per LF	80.00	LF	0			\$0	\$0	\$0	\$8,000	\$8,000
Memo: Excav 80' asphalt for install of 8" CMP.												
8" CMP	GEN	U.C. per LF	80.00	LF	0.5			\$0	\$0	\$0	\$800	\$800
Memo: 16 gauge												
Allowance for Endwall	GEN	U.C. per Ea	1.00	Ea	0			\$0	\$0	\$0	\$2,500	\$2,500
'CPP 699'	GEN	U.C. per LS	1.00	LS	0			\$0	\$0	\$0	\$0	\$0
Stormwater Drainage from Building	GEN	U.C. per CY	4.00	CY	0			\$0	\$0	\$0	\$1,800	\$1,800
Memo: 30' long. See dwg # 515192, detail 12. Includes site prep												

08/07/2006 10:43:45

Estimating Services Department

Material Costs where applicable include Idaho State Sales Tax

Page No. 2



431.02  
01/30/2003  
Rev. 11

## ENGINEERING DESIGN FILE

EDF-6868  
Revision 0  
Page 78 of 84

### DETAIL ITEM REPORT

Project Name: **WAG 3/Group 4**  
**EDF 6868 Methods to Reduce Water Infiltration at INTEC**  
Project Location: **CPP-604, North INTEC Near Water Tanks**  
Estimate Number: **2974-E**

Client: **J. R. Forbes, 6-9685**  
Prepared By: **J. Folker, 6-0322**  
Estimate Type: **Planning**

Code	Description	Contractor	Qty	UOM	Hrs	Resource	Labor	Equipment	Material	Subcontractor	Other	TOTAL
<b>04000 TASK 1-CAPTURE ROOF RUNOFF FROM SELECTED BLDGS</b>												
	GEN	U.C. per LS					0	0	0	20000	0	20000
	Allowance for Rerouting Storm Drng to Exist TF Ditches		1.00	LS	0		\$0	\$0	\$0	\$20,000	\$0	\$20,000
	'CPP 1618'	U.C. per LS					0	0	0	0	0.01	0.01
			1.00	LS	0		\$0	\$0	\$0	\$0	\$0	\$0
	GEN	U.C. per LS					0	0	0	20000	0	20000
	Allowance for Rerouting Storm Drng to Exist TF Ditches		1.00	LS	0		\$0	\$0	\$0	\$20,000	\$0	\$20,000
	GEN	U.C. per LS					0	0	0	30000	0	30000
	Allowance for Runoff from 1618		1.00	LS	0		\$0	\$0	\$0	\$30,000	\$0	\$30,000
Memo: To Olive ave lift station. Includes 150 SF of pavement and 30 LF concrete ditch (for ditch see detail 12 on dwg # 515192.												
	GEN	U.C. per LS					0	0	0	0	0.01	0.01
	'WCF Cap Runoff'		1.00	LS	0		\$0	\$0	\$0	\$0	\$0	\$0
	GEN	U.C. per CY					0	0	0	450	0	450
	Concrete Ditch		4.00	CY	0		\$0	\$0	\$0	\$1,800	\$0	\$1,800
Memo: 30' long. See dwg # 515192, detail 12. Includes site prep												
Subtotal							\$478	\$0	\$845	\$84,100	\$0	\$85,423
Sales Tax							\$0	\$0	\$42	\$0	\$0	\$42
Overheads							\$139	\$0	\$258	\$24,414	\$0	\$24,810
Subtotal Estimate							\$0	\$0	\$0	\$0	\$0	\$110,275
Escalation							\$185	\$0	\$343	\$32,554	\$0	\$33,083
Contingency												
---Total 04000 TASK 1-CAPTURE ROOF RUNOFF FROM SELECTED BLDGS					50		\$801	\$0	\$1,488	\$141,068	\$0	\$143,358

### 04000 TASK 4-ELIMINATE STEAM CONDENSATE DRIP LEG DISCHARGES TO GROUND NEAR CPP-604

	PIPE	U.C. per Ea			20	\$47.76	955.2	0	0	0	0	955.2
	Cut/Dispose Drip Leg		1.00	Ea	20	CN-PIPE	\$955	\$0	\$0	\$0	\$0	\$955

08/07/2006 10:43:45

Estimating Services Department

Material Costs where applicable include Idaho State Sales Tax

Page No. 3

431.02  
01/30/2003  
Rev. 11

## ENGINEERING DESIGN FILE

EDF-6868  
Revision 0  
Page 79 of 84

### DETAIL ITEM REPORT

Project Name: **WAG 3/Group 4**  
**EDF 6868 Methods to Reduce Water Infiltration at INTEC**  
Project Location: **CPP-604, North INTEC Near Water Tanks**  
Estimate Number: **2974-E**

Client: **J. R. Forbes, 6-9685**  
Prepared By: **J. Folker, 6-0322**  
Estimate Type: **Planning**

Code	Description	Contractor	Qty	UOM	Hrs	Resource	Labor	Equipment	Material	Subcontractor	Other	TOTAL
<b>04000 TASK 4-ELIMINATE STEAM CONDENSATE DRIP LEG DISCHARGES TO GROUND NEAR CPP-604</b>												
	2" CS Coupling	PIPE	U.C. per Ea	1.00	Ea	2	\$47.76	95.52	0	10	0	105.52
						2	CN-PIPE	\$96	\$0	\$10	\$0	\$106
	2" CS Pipe	PIPE	U.C. per LF	120.00	LF	0.5	\$47.76	23.88	0	4	0	27.88
	Memo: Welded, incl hangers and supports.					60	CN-PIPE	\$2,866	\$0	\$480	\$0	\$3,346
	2" CS Elbow	PIPE	U.C. per Ea	3.00	Ea	2	\$47.76	95.52	0	10	0	105.52
						6	CN-PIPE	\$287	\$0	\$30	\$0	\$317
	Subtotal							\$4,203	\$0	\$520	\$0	\$4,723
	Sales Tax							\$0	\$0	\$28	\$0	\$28
	Overheads	48.10%						\$2,022	\$0	\$263	\$0	\$2,284
	Subtotal Estimate							\$0	\$0	\$0	\$0	\$7,033
	Escalation							\$0	\$0	\$0	\$0	\$0
	Contingency							\$1,867	\$0	\$243	\$0	\$2,110
--- Total					88			\$8,092	\$0	\$1,051	\$0	\$9,143
<b>DISCHARGES TO GROUND NEAR CPP-604</b>												

### 04000 TASK 6-INSTALL CONCRETE IN UNLINED NORTH DITCH

00E0960	Cat D4 Dozer	GEN	U.C. per Ea	1.00	Ea	40		0	1471.2	0	0	1471.2
						40	00E0960	\$0	\$1,471	\$0	\$0	\$1,471
CN-SURR	SURVEYOR RODMAN (GROUP 3)	GEN	U.C. per Ea	1.00	Ea	20	\$36.43	728.6	0	0	0	728.6
						20	CN-SURR	\$729	\$0	\$0	\$0	\$729
CN-SURV	SURVEYOR INSTRUMENT MAN (GROUP 5)	GEN	U.C. per Ea	1.00	Ea	20	\$37.19	743.8	0	0	0	743.8
						20	CN-SURV	\$744	\$0	\$0	\$0	\$744
CN-EQMD	EQUIPMENT OPERATOR MEDIUM EQUIP GROUP 6(>4 CY)	GEN	U.C. per Ea	1.00	Ea	40	\$39.03	1561.2	0	0	0	1561.2
						40	CN-EQMD	\$1,561	\$0	\$0	\$0	\$1,561
CN-LABR	LABORER	GEN	U.C. per Ea	2.00	Ea	40	\$35.21	1408.4	0	0	0	1408.4
						80	CN-LABR	\$2,817	\$0	\$0	\$0	\$2,817

08/07/2006 10:43:45

Estimating Services Department

Material Costs where applicable include Idaho State Sales Tax  
Page No. 4

431.02  
01/30/2003  
Rev. 11

## ENGINEERING DESIGN FILE

EDF-6868  
Revision 0  
Page 80 of 84

### DETAIL ITEM REPORT

Project Name: **WAG 3/Group 4**  
**EDF 6868 Methods to Reduce Water Infiltration at INTEC**  
Project Location: **CPP-604, North INTEC Near Water Tanks**  
Estimate Number: **2974-E**

Client: **J. R. Forbes, 6-9685**  
Prepared By: **J. Folker, 6-0322**  
Estimate Type: **Planning**

Code	Description	Contractor	Qty	UOM	Hrs	Resource	Labor	Equipment	Material	Subcontractor	Other	TOTAL
<b>04000 TASK 6-INSTALL CONCRETE IN UNLINED NORTH DITCH</b>												
	GEN	U.C. per CY					0	0	0	400	0	400
	Rebar/Concrete Placement		335.00	CY	0		\$0	\$0	\$0	\$134,000	\$0	\$134,000
Memo: Based on dwg # 515192 ditch details and sections, typ ditch detail 13, type 3.												
Subtotal							\$5,850	\$1,471	\$0	\$134,000	\$0	\$141,322
Sales Tax							\$0	\$0	\$0	\$0	\$0	\$0
Overheads		29.03%					\$1,698	\$427	\$0	\$38,900	\$0	\$41,026
Subtotal Estimate												\$182,347
Escalation							\$0	\$0	\$0	\$0	\$0	\$0
Contingency							\$2,265	\$569	\$0	\$51,870	\$0	\$54,704
---Total 04000 TASK 6-INSTALL CONCRETE IN UNLINED NORTH DITCH					160		\$9,813	\$2,468	\$0	\$224,770	\$0	\$237,051

### 04000 TASK 9-EXTEND PAVEMENT AND/OR LINED DITCHES TO REDUCE STORMWATER INFILTRATION

00E0960	GEN	U.C. per Ea	1.00	Ea	40	00E0960	0	1471.2	0	0	0	1471.2
	Cat D4 Dozer				40		\$0	\$1,471	\$0	\$0	\$0	\$1,471
CN-SURR	GEN	U.C. per Ea	1.00	Ea	20	CN-SURR	728.6	0	0	0	0	728.6
	SURVEYOR RODMAN (GROUP 3)				20		\$729	\$0	\$0	\$0	\$0	\$729
CN-SURV	GEN	U.C. per Ea	1.00	Ea	20	CN-SURV	743.8	0	0	0	0	743.8
	SURVEYOR INSTRUMENT MAN (GROUP 5)				20		\$744	\$0	\$0	\$0	\$0	\$744
CN-EOMD	GEN	U.C. per Ea	1.00	Ea	40	CN-EQMD	1561.2	0	0	0	0	1561.2
	EQUIPMENT OPERATOR MEDIUM EQUIP GROUP 6(>4 CY)				40		\$1,561	\$0	\$0	\$0	\$0	\$1,561
CN-LABR	GEN	U.C. per Ea	2.00	Ea	80	CN-LABR	1408.4	0	0	0	0	1408.4
	LABORER				80		\$2,817	\$0	\$0	\$0	\$0	\$2,817
	GEN	U.C. per CY					0	0	0	400	0	400
	Rebar/Concrete Placement		335.00	CY	0		\$0	\$0	\$0	\$134,000	\$0	\$134,000
Memo: Based on dwg # 515192 ditch details and sections, typ ditch detail 13, type 3. For lining ditch from Olive Ave to Lodgepole St.												
	GEN	U.C. per LS	1.00	LS	0		0	0	0	0	0.01	0.01
	*Cedar Street Culvert*				0		\$0	\$0	\$0	\$0	\$0	\$0
Memo: 40' under Cypress Ave. Excavation, installation of 12" CMP, backfill and resurface asphalt. Headwall and endwall.												

08/07/2006 10:43:45

Estimating Services Department

Material Costs where applicable include Idaho State Sales Tax

Page No. 5



431.02  
01/30/2003  
Rev. 11

## ENGINEERING DESIGN FILE

EDF-6868  
Revision 0  
Page 81 of 84

### DETAIL ITEM REPORT

Project Name: **WAG 3/Group 4**  
**EDF 6868 Methods to Reduce Water Infiltration at INTEC**  
Project Location: **CPP-604, North INTEC Near Water Tanks**  
Estimate Number: **2974-E**

Client: **J. R. Forbes, 6-9685**  
Prepared By: **J. Folker, 6-0322**  
Estimate Type: **Planning**

<u>Code</u>	<u>Description</u>	<u>Contractor</u>	<u>Qty</u>	<u>UOM</u>	<u>Hrs</u>	<u>Resource</u>	<u>Labor</u>	<u>Equipment</u>	<u>Material</u>	<u>Subcontractor</u>	<u>Other</u>	<u>TOTAL</u>
<b>04000 TASK 9-EXTEND PAVEMENT AND/OR LINED DITCHES TO REDUCE STORMWATER INFILTRATION</b>												
	GEN	<i>U.C. per LF</i>					0	0	0	150	0	150
	Excavation, Backfill, Compaction, Resurface Asphalt		40.00	LF	0		\$0	\$0	\$0	\$6,000	\$0	\$6,000
Memo: Excav 80' asphalt for install of 8" CMP.												
	GEN	<i>U.C. per LF</i>			0.75		0	0	15	0	0	15
	12" CMP		40.00	LF	30		\$0	\$0	\$600	\$0	\$0	\$600
Memo: 16 gauge												
	GEN	<i>U.C. per Ea</i>					0	0	0	2500	0	2500
	Allowance for Endwall		1.00	Ea	0		\$0	\$0	\$0	\$2,500	\$0	\$2,500
Subtotal							\$5,850	\$1,471	\$600	\$142,500	\$0	\$150,422
Sales Tax							\$0	\$0	\$30	\$0	\$0	\$30
Overheads							\$1,698	\$427	\$183	\$41,368	\$0	\$43,676
Subtotal Estimate												\$194,128
Escalation							\$0	\$0	\$0	\$0	\$0	\$0
Contingency							\$2,265	\$569	\$244	\$55,160	\$0	\$58,238
---Total					04000 TASK 9-EXTEND PAVEMENT AND/OR LINED DITCHES TO REDUCE STORMWATER INFILTRATION	190	\$9,813	\$2,468	\$1,057	\$239,028	\$0	\$252,366

### 04000 TASK 10-IMPROVE SURFACE WATER DNG ALONG OLIVE AVE

	GEN	<i>U.C. per LS</i>					0	0	0	178000	0	178000
	Olive Ave Lift Station		1.00	LS	0		\$0	\$0	\$0	\$178,000	\$0	\$178,000
Memo: Olive Ave Lift Station estimate from FY 2000= \$151,279. Escalated to FY 2006 (17.46%) = \$178,000.												
	GEN	<i>U.C. per LF</i>					0	0	0	25	0	25
	12" HDPE		100.00	LF	0		\$0	\$0	\$0	\$2,500	\$0	\$2,500
Memo: From lift station to olive Ave/Lodgepole lined ditch. Extends west from lift station along south side of Olive Ave.												

08/07/2006 10:43:45

Estimating Services Department

Material Costs where applicable include Idaho State Sales Tax  
Page No. 6

431.02  
01/30/2003  
Rev. 11

## ENGINEERING DESIGN FILE

EDF-6868  
Revision 0  
Page 82 of 84

### DETAIL ITEM REPORT

Project Name: **WAG 3/Group 4**  
**EDF 6868 Methods to Reduce Water Infiltration at INTEC**  
Project Location: **CPP-604, North INTEC Near Water Tanks**  
Estimate Number: **2974-E**

Client: **J. R. Forbes, 6-9685**  
Prepared By: **J. Folker, 6-0322**  
Estimate Type: **Planning**

<u>Code</u>	<u>Description</u>	<u>Contractor</u>	<u>Qty</u>	<u>UOM</u>	<u>Hrs</u>	<u>Resource</u>	<u>Labor</u>	<u>Equipment</u>	<u>Material</u>	<u>Subcontractor</u>	<u>Other</u>	<u>TOTAL</u>
04000 TASK 10-IMPROVE SURFACE WATER DNG ALONG OLIVE AVE												
	8" Trench Drain	GEN		U.C. per CY			0	0	0	450	0	450
			10.00	CY			\$0	\$0	\$0	\$4,500	\$0	\$4,500
Memo: 100 L.F. Ref dwg # 515192 detail A, Typ 8" trench drain section. Includes site prep												
	Subtotal						\$0	\$0	\$0	\$185,000	\$0	\$185,000
	Sales Tax						\$0	\$0	\$0	\$0	\$0	\$0
	Overheads			29.03%			\$0	\$0	\$0	\$53,706	\$0	\$53,706
	Subtotal Estimate						\$0	\$0	\$0	\$0	\$0	\$238,706
	Escalation						\$0	\$0	\$0	\$0	\$0	\$0
	Contingency						\$0	\$0	\$0	\$71,612	\$0	\$71,612
---	Total	04000 TASK 10-IMPROVE SURFACE WATER DNG ALONG OLIVE AVE			0		\$0	\$0	\$0	\$310,317	\$0	\$310,317

### 04000 TASK 7-TWO ADDITIONAL FLOWMETERS ON FIRE WATER SYSTEM

Allowance for Flowmeters	PIPE	U.C. per Ea	2.00	Ea	0	0	0	0	2500	0	2500
Memo: Install on Pumps 672, 673											
'Perform Flow Testing'	PIPE	U.C. per LS	1.00	LS	0	0	0	0	0	0.01	0.01
Memo: See task 1.B, from Karl Kotter proposal dated July 25, 2006.											
CN-PIPE	PIPE	U.C. per Ea	2.00	Ea	20	47.76	955.2	0	0	0	955.2
	PIPE FITTERS (WELDER, MATERIAL MAN, BENDER DETAIL)				40	CN-PIPE	\$1,910	\$0	\$0	\$0	\$1,910
'Replace Butterfly Valves w/Gate Valves'	PIPE	U.C. per LS	1.00	LS	0	0	0	0	0	0.01	0.01
Memo: See task 2, from Karl Kotter proposal dated July 25, 2006.											
Gate Valve Assembly	PIPE	U.C. per Ea	2.00	Ea	20	47.76	955.2	0	3852	0	4917.2
					40	CN-PIPE	\$1,910	\$0	\$7,724	\$0	\$9,634
CN-ELEI	PIPE	U.C. per Ea	2.00	Ea	5	39.93	199.65	0	0	0	199.65
	ELECTRICIAN INSIDE WIREMAN (480V AND BELOW)				10	CN-ELEI	\$399	\$0	\$0	\$0	\$399

08/07/2006 10:43:45

Estimating Services Department

Material Costs where applicable include Idaho State Sales Tax  
Page No. 7

431.02  
01/30/2003  
Rev. 11

## ENGINEERING DESIGN FILE

EDF-6868  
Revision 0  
Page 83 of 84

### DETAIL ITEM REPORT

Project Name: **WAG 3/Group 4**  
**EDF 6868 Methods to Reduce Water Infiltration at INTEC**  
Project Location: **CPP-604, North INTEC Near Water Tanks**  
Estimate Number: **2974-E**

Client: **J. R. Forbes, 6-9685**  
Prepared By: **J. Folker, 6-0322**  
Estimate Type: **Planning**

Code	Description	Contractor	Qty	UOM	Hrs	Resource	Labor	Equipment	Material	Subcontractor	Other	TOTAL
<b>04000 TASK 7-TWO ADDITIONAL FLOWMETERS ON FIRE WATER SYSTEM</b>												
	PIPE	U.C. per LS					0	0	0	0	0.01	0.01
	*Replace of Pipe Section*		1.00	LS	0		\$0	\$0	\$0	\$0	\$0	\$0
Memo: See task 3, from Karl Kotter proposal dated July 25, 2006.												
	PIPE	U.C. per LS			20	\$47.76	955.2	0	500	0	0	1455.2
	Misc Pipe Materials		1.00	LS	20	CN-PIPE	\$955	\$0	\$500	\$0	\$0	\$1,455
	PIPE	U.C. per LS					0	0	0	0	0.01	0.01
	*Install Ultrasonic Flowmeters*		1.00	LS	0		\$0	\$0	\$0	\$0	\$0	\$0
Memo: See task 4.A, from Karl Kotter proposal dated July 25, 2006.												
	PIPE	U.C. per LS			40	\$47.76	1910.4	0	19400	0	0	21310.4
	Misc Materials		1.00	LS	40	CN-PIPE	\$1,910	\$0	\$19,400	\$0	\$0	\$21,310
CN-ELEI	PIPE	U.C. per Ea			20	\$39.93	798.6	0	0	0	0	798.6
	ELECTRICIAN INSIDE WIREMAN (480V AND BELOW)		2.00	Ea	40	CN-ELEI	\$1,597	\$0	\$0	\$0	\$0	\$1,597
	PIPE	U.C. per LS					0	0	0	0	0.01	0.01
	*Collect Flowmeters to CPP 606 Data Logger*		1.00	LS	0		\$0	\$0	\$0	\$0	\$0	\$0
Memo: See task 4.B, from Karl Kotter proposal dated July 25, 2006.												
	PIPE	U.C. per LS			40	\$47.76	1910.4	0	1380	0	0	3290.4
	Misc Materials		1.00	LS	40	CN-PIPE	\$1,910	\$0	\$1,380	\$0	\$0	\$3,290
CN-ELEI	PIPE	U.C. per Ea			40	\$39.93	1597.2	0	0	0	0	1597.2
	ELECTRICIAN INSIDE WIREMAN (480V AND BELOW)		2.00	Ea	80	CN-ELEI	\$3,194	\$0	\$0	\$0	\$0	\$3,194
Subtotal							\$13,788	\$0	\$29,004	\$5,000	\$0	\$47,792
Sales Tax							\$0	\$0	\$1,450	\$0	\$0	\$1,450
Overheads							\$6,632	\$0	\$14,650	\$2,405	\$0	\$23,687
Subtotal Estimate												\$72,929
Escalation							\$0	\$0	\$0	\$0	\$0	\$0
Contingency							\$6,126	\$0	\$13,531	\$2,222	\$0	\$21,879
---Total 04000 TASK 7-TWO ADDITIONAL FLOWMETERS ON FIRE WATER SYSTEM					310		\$26,546	\$0	\$58,635	\$9,627	\$0	\$94,808

08/07/2006 10:43:45

Estimating Services Department

Material Costs where applicable include Idaho State Sales Tax  
Page No. 8

431.02  
01/30/2003  
Rev. 11

## ENGINEERING DESIGN FILE

EDF-6868  
Revision 0  
Page 84 of 84

### DETAIL ITEM REPORT

Project Name: **WAG 3/Group 4**  
**EDF 6868 Methods to Reduce Water Infiltration at INTEC**  
Project Location: **CPP-604, North INTEC Near Water Tanks**  
Estimate Number: **2974-E**

Client: **J. R. Forbes, 6-9685**  
Prepared By: **J. Folker, 6-0322**  
Estimate Type: **Planning**

Code	Description	Contractor	Qty	UOM	Hrs	Resource	Labor	Equipment	Material	Subcontractor	Other	TOTAL
<b>05000 CONSTRUCTION SUPPORT</b>												
U60	RADIOLOGICAL CONTROL TECH	CWI	26.00	Wks	520	U60	\$20,348	\$0	\$0	\$0	\$0	\$20,348
			U.C. per Wks									
S08	INDUSTRIAL HYGIENE	CWI	26.00	Wks	520	S08	\$26,437	\$0	\$0	\$0	\$0	\$26,437
			U.C. per Wks									
Subtotal							\$46,784	\$0	\$0	\$0	\$0	\$46,784
Sales Tax							\$0	\$0	\$0	\$0	\$0	\$0
Overheads							\$14,035	\$0	\$0	\$0	\$0	\$14,035
			30.00%									
Subtotal Estimate							\$0	\$0	\$0	\$0	\$0	\$0
Escalation							\$18,246	\$0	\$0	\$0	\$0	\$18,246
Contingency												
---Total 05000 CONSTRUCTION SUPPORT					1,040		\$79,066	\$0	\$0	\$0	\$0	\$79,066

Subtotal	WAG 3/GROUP 4/EDF 6868-METHODS TO REDUCE WATER						\$76,953	\$2,942	\$30,969	\$550,600	\$177,998	\$839,462
Sales Tax	INFILTRATION at INTEC/TASKS 4, 6						\$0	\$0	\$1,548	\$0	\$0	\$1,548
Overheads							\$26,225	\$854	\$15,353	\$160,793	\$0	\$203,225
Subtotal Estimate							\$0	\$0	\$0	\$0	\$0	\$1,044,236
Escalation							\$30,953	\$1,139	\$14,361	\$213,418	\$53,399	\$0
Contingency												\$313,271
Total WAG 3/GROUP 4/EDF 6868-METHODS TO REDUCE WATER					1,838		\$134,132	\$4,936	\$62,231	\$924,811		\$1,357,506
INFILTRATION at INTEC/TASKS 4, 6										\$231,397		

08/07/2006 10:43:45

Estimating Services Department

Material Costs where applicable include Idaho State Sales Tax  
Page No. 9